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80/244/RM

1999-10

INTERNATIONAL ELECTROTECHNICAL COMMISSION

TECHNICAL COMMITTEE No. 80: Maritime navigation and radiocommunication equipment and systems

Minutes of the meeting held in Southampton from 27th to 29th September 1999

Present:

Chairman	Dr A P Norris	(United Kingdom)
Secretary	Mr P F C Griffiths	(United Kingdom)
Secretary (designate)	Mr M Rambaut	(United Kingdom)
Assistant Secretary	Mr G Thompson	(United Kingdom)
Assistant Secretary (designate)	Mr N Bradfield	(United Kingdom)
British Electrotechnical Committee	Mr W Fancourt	(United Kingdom)
Meeting Secretariat	Mrs A Sutherland	(United Kingdom)
IEC Central Office (Geneva)	Mr C Jacquemart	(Switzerland)

COUNTRY

DELEGATES

CANADA

Mrs Eve Clark
Mr Pieter Leenhouts
Mr Paul Vale
Mr Neil Chaulk

FINLAND

Mr Hannu Peiponen

FRANCE

Mr Jean-Christian Huignard
Mr Alain Deverre

GERMANY

Dr Bernd-Michael Bleichert
Mr Hans H Leskze
Mr Rainer Rudloff
Mr H Wentzell

JAPAN

Mr Yoshiaki Abe
Mr Mitsuho Katayama
Mr Yukihiro Miyake
Mr Minoru Sato

THE NETHERLANDS

Mr Wim F M van der Heijden

NORWAY

Mr A Lepsoe

RUSSIA

Dr Roman Chernyaev
Mr Andray Vorobiev

Head of delegation is underlined

UNITED KINGDOM

Mr Adil Abbas
 Mr R Andrews (27/28th only)
 Mr John Beattie
 Captain J Collins
Mr K Fisher
 Mr M Fox (27th only)
 Mr David Hannah (27th only)
 Mr R Lee
 Mr Alistair Messer
 Mr Kevin Mylan
 Mr Mike Pope (27th only)
 Mr S Roylance (28th only)
 Mr Robert Sasse
 Mr Maurice Storey (28th only)
 Mr Mark White
 Mr David Wilson (27th only)
 Mr Chris Winkley (27th only)

USA

Mr Joseph Hersey
 Mr John Roeber
 Dr John Yancey

LIAISON ORGANIZATION

CIRM

RTCM

ISO TC8/SC5

ISO TC8/SC6

Head of delegation is underlined**DELEGATES**

Captain Chris Cobley

Mr W T Adams

Captain J Collins

Mr Musiho Katayama

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1 OPENING OF THE MEETING

The Chairman opened the meeting by inviting Mr Bill Fancourt from the British Standards Institute (BSI) to formal open the meeting on behalf of the British Electrotechnical Committee (BEC).

Mr Fancourt welcomed the delegates on behalf of the BEC. He noted that it was 10 years since the BEC had hosted a meeting of the Technical Committee and how relevant to the Committee's work had been the choice of Southampton as a venue. Southampton together with its neighbouring City of Portsmouth have had a long and distinguished association with maritime matters. The movement of shipping and maritime goods was first mentioned in the records of the area in the 12th Century, and this has reached a peak during the 19th and 20th centuries.

It seemed appropriate that we were meeting in a building that housed our National Maritime, Coastguard and anti-pollution representatives.

He welcomed the use by TC 80 of the conference facilities of the BSI in London, which had become a regular meeting place for the TC 80 Working Groups.

In conclusion, he wished the Committee every success with their work programme and a satisfactory outcome to the meeting.

The Chairman then thanked Bill Fancourt for his kind words and particularly hoped that the good co-operation with BEC would continue.

The Chairman then turned to the initial administrative arrangements for the meeting.

He thanked the UK Maritime and Coastguard Agency (MCA) for providing all the facilities for the meeting. He introduced Mrs Anne Sutherland of the MCA, who would act as the Meeting Secretary, and delegates were invited to contact Anne for assistance with copying of documents, use of telephone, facsimile etc.

All delegates should have received badges upon entering the building. These should be handed in on exit at any time and would be re-issued on return.

The Committee were inviting delegates and their partners to a Dinner on the evening of the 28th and the Secretariat were anxious to finalise the attendance list at the earliest opportunity. Delegates were invited to confirm their attendance by noon of the 27th. Transport arrangements to the Dinner would be made known by noon of the 28th.

A buffet lunch would be made available on each day of the meeting at approximately 1230 Hrs. Coffee machines were available in each of the three meeting rooms.

The Chairman noted that the following were represented at the meeting – Canada, Finland, France, Germany, Japan, Netherlands, Norway, Netherlands, UK, USA, CIRM and RTCM.

Apologies had been received from Belgium, Italy, Sweden, IHB, ITU, ISO/TC8/SC5 and ISO/TC8/SC6.

He welcomed Canada and Finland as new P members, and Charles Jacquemart from the IEC Central Office.

The present membership of the Committee was P – 17, O – 14, Liaison A – 9, and Liaison D – 1.

It was probable that the first day would be taken up entirely as a Plenary meeting, the second day for Working Group meetings, and the third day for further Plenary business.

He was aware that some delegates were only able to attend on the first day, and would therefore endeavour to complete discussion of all the major items on that day.

2 APPROVAL OF THE AGENDA (Document 80/230/DA)

The draft Agenda was approved with the addition of document 80/241/INF which contained a revision to item 7 – consideration of new work items.

The Secretary had provided various documents for the meeting. These had been made available and document 80/Southampton/Secretariat/16 contained a full list of these documents. (see Annex A of this report)

3 TO CONFIRM THE MINUTES OF THE MEETING HELD IN BRUSSELS – 80/162/RM – SEPTEMBER 1997

No comments had been received and therefore the Minutes were confirmed.

4 MATTERS ARISING

There were no matters arising that were not covered by the Agenda. All the Actions had been completed.

5 MEETINGS OF THE TC80 WORKING GROUPS DURING THE PLENARY MEETING

5.1 WG5 – General requirements – revision of IEC 60945

The Convenor of WG5 (Mr K Fisher (UK)) informed the meeting that WG5 would meet for one day only – the 28th September.

5.2 WG10 – Integrated navigation systems (INS) (Future IEC 61924)

Unfortunately both the Convenor (Mr A Gambardella) and the Secretary (Mr R Podesta) were unable to attend the meeting. Mr R Lee (UK) informed the delegates that he would act as the meeting Convenor and that WG 10 would meet for one day only - the 28th September.

6 REPORTS FROM THE WORKING GROUPS

6.1 WG1 – Radar/ARPA (Convenor UK – IEC 60872 series and IEC 60936 series)

The Convenor introduced the report of the Working Group.

The Working Group has been meeting at about 3 monthly intervals since 1995. Recent meetings have been held at DNV Oslo, BSH Hamburg, LMS Charlottesville USA, but the majority by agreement at BSI London. Between 10 and 15 delegates are present at the meetings. All business will be by E-mail from January 2000 onwards.

The terms of reference of WG1 cover the revision and updating of IEC 936 (Radar) and IEC 872 (ARPA) to meet new IMO performance standards. Seven standards – in the 60872 and 60936 series, one for radar and the other for radar plotting, have been agreed and designated. The status and predicted availability (where applicable) of an IEC Committee draft for voting (CDV) are given in the following tables.

Table 1 - RADAR - IEC 60936 series

IEC Publication	Designation	Status at 1999 - 09
IEC 60936-1	Radar with maps - an update of IEC936 (1988)	In FDIS stage
IEC 60936-2	Radar for HSC	IEC Standard
IEC 60936-3	Radar with Chart facilities	CDV in March 2000
IEC 60936-4	Radar with ECDIS 'Back-up' capability	Consider start 2000-04, to allow for the progress of MT1 on ECDIS

Table 2 - RADAR PLOTTING - IEC 60872 series

IEC Publication	Designation	Status at 1999 - 09
IEC 60872-1	ARPA - update of IEC 872 (1987)	IEC Standard
IEC 60872-2	ATA – a subset of ARPA suitable for smaller ships and HSC	IIEC Standard
IEC 60872-3	EPA – for yet smaller ships with possibly an EM compass	CDV voting ends 1999-09-30

WG1 has achieved a standards development rate to the CDV stage of 6 standards in 5 years.

The current decision taken by the WG is to complete work on the CD of IEC 60936-3 in March 2000. The postponed work on IEC 60936-4 (Radar with ECDIS 'back-up' capability) would be re-invigorated with a newly focussed team in May 2000 on the satisfactory completion of the CD (or CDV) of IEC 61174 2nd edition on ECDIS. The Working Group would seek comments from Maintenance Team 1 on the draft of 60936-3 to determine whether 60936-4 needs to be developed.

ACTION – WG1/MT1

It is perhaps interesting to note that testing of radar spurious emissions to ITU Radio Regulations have been included for the first time. It is perhaps more interesting to note that these requirements are predicted to be a more severe constraint on the development of radar in the future.

Some issues of continuing debate are:

1. the further definition and inclusion of AIS functionality and symbology into the radar/ radar plotting display surface;
2. that high resolution display requirements of the 'chart' radar are unavailable on ARPA-size screens (340mm). This effectively bars the 'Chart' radar from the very market it should be aimed at. The display industry is investing its energy into various flat screen technologies – but they still do not meet the maritime 'bridge' display specification requirements – as yet.

The Chairman thanked Mr Lee for his report and invited questions from the delegates.

The Chairman of the Working Group (Mr D Hannah – UK) informed the meeting that the Group were discussing "new technology" radar, the amalgamation of the radar and plotting standards, and the integration of AIS systems into the radar displays.

6.2 WG1A – Track control

The Working Group (WG1A) has been meeting at about 3 monthly intervals since 1998. Recent meetings have been held at ISSUS and at BSH Hamburg, LMS Charlottesville USA and BSI London. Between 10 and 15 delegates are present at the meetings. All business is by E-mail. 7 meetings have been held up to Sept. 1999.

The Terms of reference of WG1A are to clarify the IMO Performance Standard for Track Control (not an easy task) and to produce a test and required results specification IEC 62065. The WG is working jointly with ISO (with IEC leading).

The group, under the excellent chairmanship of Professor Bernard Berking, has been working well and the planned schedule is to complete the Committee Draft for Voting (CDV) by March 2000 (if not earlier).

A current decision taken by the WG is to allow the scope of track control to be extended (backwards) to cover 'rate of turn' control around bends as 'track control' rather than requiring the user to switch to the established function and mode of heading control. The UK and Norwegian delegates, in particular, are not yet convinced of the safety of the compromise proposal.

It should be noted that IEC 62065 does not include in its scope an application to HSC.

Some issues of continuing debate are:

1. the specification (and validation) of the ship motion simulator to be used to exercise and test the candidate track control equipment;
2. the uneasy scope boundary between track control and an Integrated navigation system;
3. the development of guidance (best practice) in an informative Annex on 'Speed Control';
4. to reduce the large number of conditional 'if' statements and consequently the large number of track control variants and thus the potential for designed in accidents and training difficulties.

The Chairman thanked WG 1A for their report. Various points with regard to this project.

Mr A Messer asked that TC 18 (WG16) be added in liaison to this group. Mr Leskze in response to a question from Mr Messer, informed that speed control that was already included in TC 18 standards, would be included in this project as an Informative annex. Mr Leskze would be formally recognised as the Convenor of this Working Group.

Display considerations and symbology were not currently being considered by the Group.

The USA (Mr J Roeber) raised the question of the ability of the system to switch to manual operation as a single operation.

6.3 WG4 – Position fixing aids

The only project within this Working Group had been the revision of IEC 61075 –

LORAN-C/CHAYKA. Unfortunately, the Convenor from France had been unable to continue the work of revision and incorporation of CHAYKA into the revision of the original standard. The current project had been cancelled. The standard remained within the maintenance cycle programme of the Committee and could be considered for revision in the future.

6.4 WG4A - Global navigation satellite systems (GNSS)

The Working Group (WG4A) has been meeting regularly for the past 2 years. Recent meetings have been held at USCG NAVCEN Washington, RTCM Orlando, Seezeichenversuchsfeld Koblenz and at BSI London. A core of 10 delegates regularly attends with perhaps 3 or 4 new delegates at the various venues. All business is by E-mail.

The terms of reference of WG4A currently cover the satellite 'position fixing systems' of GPS and GLONASS and their combination and differential correction 'beacon receivers' to meet IMO performance standards. Four standards have been agreed and designated. The status and predicted availability (where applicable) of an IEC Committee Draft for Voting (CDV) are given in the following table.

Table 1 - GNSS - IEC 61108 series

IEC Reference	Designation	Status at 1999 – 09
IEC 61108-1	GPS	IEC Standard
IEC 61108-2	GLONASS	IEC Standard
IEC 61108-3	GPS/GLONASS Combined equipment	Not yet formally started
IEC 61108-4	DGPS and DGLONASS	CDV in early 2000 - Conditional on IMO NAV45 amendment

The CDV for IEC 61108-4 DGNSS is scheduled for completion by May 2000.

Work has been suspended on the combined GPS/GLONASS IEC 61108-3 for lack of sustained interest.

An IEC paper to IMO has been drafted and encouraged, to update the IMO performance standard for GPS to include HSC usage, a more mature understanding of the potential interference environment and thus the consequential immunity requirements, amongst others.

Unfortunately this was not completed during IMO NAV 45 in September 1999, and this means that the programme of revision is delayed for at least one year.

An issue of continuing debate is the further definition of interference effects of thunderstorms and precipitation static noise and the consequential theoretical model and test environment simulator to use and the required test results.

The work programme would be modified to reflect the delay in the revision of IEC 61108-1.

6.5 WG5 - General requirements (revision of IEC 60945)

Subsequent to the publication of IEC60945 (Maritime navigation and radiocommunication equipment and systems- General requirements - methods of testing and required test results) third edition in 1996, a new work item proposal (80/155/NP) was raised in 1997 by the Secretary and TC80 Denmark to commence a revision. The proposed revision was intended to introduce new ergonomic criteria (to action work in place in IMO), to include guidelines on antenna installation (at the request of IEC TC18), to update guidelines for software usage (to again action work in place in IMO) and to revise the methods of test for some of the EMC requirements (at the request of some European members who also work in ETSI). Upon acceptance of the new work item proposal, Working Group 5 was reconvened and met in London in March 1998. The Group has subsequently met a further five times - three times in the UK, once in the USA and once in Germany.

WG5 has now completed the work on the revision of the EMC requirements. This has resulted in the deletion of some low frequency testing, which was proving difficult for some laboratories and is not now very relevant to shipborne performance of equipment. The higher frequency limit has however been raised from 1 GHz to 2GHz on request from IMO who have concerns about protecting the performance of GPS/GLONASS receivers. A revision has also been completed of the environmental and special purpose tests to remove a few anomalies.

WG5 decided not to continue with guidelines on antenna installation and this action has been overtaken by TC18 work in completing a revision of IEC 60533 (EMC).

WG5 has conducted a considerable amount of work on ergonomic criteria and software usage. All published sources of information have been assessed through an UK contract with a University. The work of the IMO Correspondence Group on ergonomics and ships bridge layout has been closely studied. As a result WG5 is now close to completing new test methods for interpreting IMO requirements for computer controlled menu driven equipment.

It is planned that the CDV for edition 4 of IEC 60945 will be available early in 2000.

The Chairman thanked the Convenor (Mr K Fisher) for his report, and invited comments. Germany had produced a CD-ROM of the ergonomic criteria from the IMO Correspondence Group. Were IEC TC 80 interested in this being formally part of the IEC standard ? There was no enthusiasm for such a course of action. It was agreed that there should be a note from IEC to IMO, with a copy to ISO/TC8/SC5 on this matter.

ACTION – CONVENOR WG5/SECRETARY

The Secretary raised the question of the Category Z limits in ITU Recommendation 327-7 (as amended) for IT equipment, in comparison with those in the draft of IEC 60945, and the use of the phrase “unwanted emissions” in 60945, as this was already defined in the Radio Regulations.

ACTION – CONVENOR WG5

6.6 WG6 – Digital interfaces (IEC 61162 series)

WG 6 deals with Digital Interfaces for navigation and radiocommunication systems and equipment.

Since the last Plenary in 1997, 5 meetings have been held and 2 further meetings have been planned for December 1999 and March 2000. The pattern has been to hold one meeting each year outside the UK and the other meetings at BSI, Chiswick. We have been very fortunate in having use of the facilities at BSH, Hamburg and Norwegian Standards, Oslo for the last two overseas meetings, as well as the assistance of the BSI for the other meetings.

Attendance has been good with a strong core of active participants, representing world-wide interests. This core is approximately 50% of the registered members.

Four basic standards are being worked on with close co-operation with the NMEA Standards Committee of the USA. These four standards are reported upon separately below.

The UK has funded the Convenor through the MCA, but this funding will cease after the March 2000 meeting, when the current Convenor will retire. Norway has provided the Chairman for the past 3 years and this should continue for the next year. The Convenor reported that he expected to solve the problem of who would take over as the new Convenor by March 2000.

IEC 61162-1

The Group work since the last plenary has been concentrated on updating the standard to take account of technical changes to the many products covered and to ensuring agreement with the equivalent NMEA standard 0183. We have held detailed discussions on all aspects of the standard and the final draft cleared the CDV stage earlier this year and all comments have been resolved.

At the time of writing the TC80 Secretary is processing the draft for DIS voting. In-line with this action the NMEA are preparing NMEA 0183 v.2.40, the equivalent document. One significant change since the original issue is that guidance on test procedures has been included. In addition the annex covering sentences to be included in approved equipment has been simplified and product standards now need to take note of the requirements.

The preparation of this draft has highlighted the problem of clearing amendments in a relatively short time. With a rapidly changing market place the full IEC procedure is too lengthy for changes to be introduced. As an example the new Universal AIS system will require a number of new sentences, which cannot wait for the standard review cycle, the industry will need the information agreed and published in advance of international product standards being finalised.

Discussions are in hand with Geneva to find a suitable route and the new PAS scheme may suffice to accomplish a rapid introduction of changes. This also needs to take account of a more flexible numbering scheme and this is commented on further in the report on 61162-4.

There is no indication of an end to the work of updating 61162-1 as new products are continually being introduced to the market.

Assuming that the DIS process goes smoothly the revised standard should be available early in the year 2000.

IEC 61162-2

The first edition was published in September 1998. The amendment to 61162-1 will mean that the Part 2 standard needs updating. This will not be the major task that Part1 required and it may be possible to simplify the document to remove duplicate sections that already occur in Part1, e.g. Glossary.

The Group has agreed that the work to update 61162-2 will not begin until the DIS on 61162-1 has been approved. Thus revision could begin early in 2000, but not earlier.

IEC 61162- 3

This proposed standard is to be based on the NMEA 2000, which is currently under practical evaluation, by several NMEA members. The NMEA policy is to freeze the current issue until more evaluation work has been carried out, to then incorporate any necessary changes and issue the formal standard at that stage, possibly in Spring 2000.

The IEC plan is to prepare a CD (only) at the December 1999 meeting and then consider a full CDV and DIS during 2000.

The standard is based on proven CAN concepts and has useful application in instrument networks or possibly in sub-systems to the 61162-4.

IEC 61162- 4

This standard is far more complex than any of the earlier standards and requires considerable expert knowledge to evaluate. In addition the design of the standard makes it applicable to interface with other ship systems and this aspect has required considerable discussion and debate. In particular the work of TC18 is closely related and we were fortunate in having an active member of TC18 in our Group.

The Group issued a CD (only) for the first two parts (Fragments 1 and 2) which generated comment from many areas. These comments have been fully addressed in the last two meetings and the project is now moving ahead to a formal CDV for the complete draft standard. The programme is to have this CDV available by the time of this Plenary. However, this is a very complex and lengthy document and may require more time to complete formal editing.

As noted with regard to 61162-1 the numbering of some aspects of these standards needs more consideration. The use of Fragments is not thought to be the most satisfactory for this series and we propose to adopt a system similar to that used by TC18 for their 60092-504. This would be close to the suggestion from Geneva to use the PAS procedure for changes, but would be adopted in the format 61162-4-101, 102, 201,202 etc. for the several parts and possible updates. We shall adopt this system for the CDV to facilitate drafting.

A meeting with TC18 representatives and other interested parties will be arranged to review the areas of common interest but this will await the CDV.

To aid further understanding of the differences between the 4 standards and to assist selection of the appropriate standard an introductory section has been drafted which will be included in the opening section of the draft standard. A copy of this document is included at annex E.

Communications

Of the 30 members currently listed only 3 are not on the Internet and hence still require postal delivery of documents. To further aid exchange of information the group will establish an FTP server in the next weeks, with the Convenor as controller.

The Chairman thanked Mr M Fox for his report and called for comments on the report. The Central Office representative suggested that a new work item proposal should be raised for the Part 3 of this series. The Secretary agreed to provide this at a time that was compatible with the expected programme for the CDV.

ACTION – SECRETARY

The Chairman informed the meeting that he had written to the US National Transportation Safety Board with regard to their findings on the “Royal Majesty” accident investigation. TC 80 had taken account of the concerns and the revision of IEC 61162-1 would contain specific amendments relevant to this incident. When available the Secretary would send a copy of IEC 61162-1 to the NTSB.

ACTION – SECRETARY

6.7 WG8 – GMDSS

Mr Rambaut the Convenor of WG8 introduced the report.

The following meetings have been held since the last Plenary meeting in September 1997:

1. Joint IEC-ETSI meeting 29/9 – 1/10/97 at Sait Radio Holland, Brussels. Subject matters were AIS, Watch receivers, NBDP, common format for standards.

2. Joint IEC- ETSI meeting 28-30/1/98 at BSI London. Subject matters were common format for standards, NBDP, VHF pagers interference.
3. Joint IEC – ETSI meeting 20-22/5/98 at BSI London. Subject matters were limited to NBDP.
4. Joint IEC – ETSI meeting 10-11/9/98 at CIRM, London. NBDP.
5. WG 8 adhoc AIS meeting 1 at BSI London 27 – 29/7/98.
6. WG 8 adhoc AIS meeting N°2 29-30/10/98 at BSI London
7. WG 8 adhoc AIS meeting N°3 Tampa 20-21/1/99
8. WG 8 adhoc AIS meeting N°4 Orlando 13-15/5/99
9. WG 8 adhoc AIS meeting N°5 Stockholm 30/8-1/9/99.

Note that WG8 adhoc is now WG8A.

Unfortunately the co-operation with ETSI has come to a standstill. The reasons for this are the lack of proper spirit on the ERM RP01 side as well as a lack of interest from the IEC side.

As noticed from the meetings listed, the activities of WG8 have been concentrated mostly on UAIS. This group is very active and very motivated. Manufacturers as well as Administrations have a strong interest in resolving all the technical issues. This is a challenge as the technology up to date is mostly unproven. The limits made on the development of the equipment by the terms of the licensing agreement seem not to impair the work.

It is important at the Plenary meeting to obtain commitment from the members to continue and complete the work for the GMDSS range of equipment (61097 series). This will include the completion of NBDP, emergency power supply and aeronautical VHF, as well as review and maintenance of the standards already published.

The Chairman invited comments. The Convenor stated that with regard to future 61097-11 – NBDP there was difficulty in progressing this item. The already published ETS 300-067 included all associated items in one standard, whereas 61097-11 does not, as spelt out in its scope. The non-integrated items are in Part 9 of 61097. Manufacturers were not keen for IEC to publish, as they had already obtained type approval using the ETS. As the EC Marine Directive was currently drafted, if IEC published their standard, it would be necessary for manufacturers to renew their type approvals.

There was already a draft for Part 13 of 61097 – reserve source of energy. With regard to Part 14 – Aeronautical VHF, it was believed that there was an ETSI draft. Volunteers were needed to progress an IEC draft.

ACTION – CONVENOR WG8

6.8 WG8A – 61993 series

The Working Group (WG8A) has been meeting in plenary sessions on UAIS (61993-2) business at about 3 monthly intervals. Five (3 day) meetings have so far been held: - twice contemporaneously with RTCM, on a ferry between Stockholm and Helsinki, Tampa USA and at BSI London. Between 30 and 50 delegates are present at the meetings.

A significant boost to the development of the standard is given by the considerable amount of inter-session work (typically 2 inches thick of printed up e-mails) carried out under the focus and guidance of between 5 and 8 'animators'. All business is conducted by e-mail through a reflection site managed by USCG.

The terms of reference of WG8A include clarification of the IMO performance standard for UAIS, but more dauntingly to clarify the ITU Recommendation. Fortunately the secretary to the ITU recommendation development and maintenance activity is an active member of IEC WG8A.

The Group has been working well and the planned schedule is to complete the Committee Draft for Voting (CDV) by May 2000. A cautionary note is that there are delegates who opine that there are

still significant difficulties in making the UAIS concept fully work – particularly in the interference environment normally to be expected, and to the IMO message rate requirement.

Another cautionary note is the perceived immaturity of the operational requirements and the display and data fusion (not confusion) needs, together with the potential for 'information overload' of the OOW.

Table 1 - AIS Transponders - IEC 61993 series

IEC Reference	Designation	Status at 1999 – 09
IEC 61993-1	AIS	IEC Standard
IEC 61993-2	UAIS	CDV by May 2000 (estimate)

The UAIS standard IEC 61993-2 is currently 105 A4 sides – without the test section. The delegates will need to continue to be vigilant to ensure self-consistency in the specification as well as correctness to requirement.

A long-range requirement, that was included in the IMO performance standard, has now, by consensus, been incorporated.

An issue of continuing concern and debate is the need to complete (where sparse) and clarify the ITU requirements and the advisability of incorporating such clarifications in the IEC specification ahead of the next opportunity for ITU agreement in late 2000.

The Chairman thanked Mr Lee for his report, and invited comments. At IMO NAV 45 during the revision of SOLAS Chapter V, the UAIS had been included. This will need to be adopted by IMO MSC 72 in May 2000. The proposed current date for mandatory carriage is July 2000.

Russia considered that there were problems concerning the display of UAIS information. Mr Hannah (UK) also was concerned with regard to the UAIS content of the anti-collision display and Mr Fisher stated that IEC should consider making an input to IMO concerning these problems.

There was sure to be a debate at IMO MSC 72 on the subject of UAIS.

ConvenorWG8A/WG1/Secretary

6.9 WG10 – Integrated navigation systems (future 61924)

In the absence of the Convenor and the Secretary of WG 10, the report was introduced by Mr R Lee (UK).

Working Group (WG10) has been developing the standard for Integrated navigation systems (INS) - meeting at about 3 monthly intervals for 3 days on each occasion. Initially the scope of INS was agreed within IEC. A paper was then input to IMO, for their consideration - with the recommendation that it formed the basis of an IMO performance standard for INS. Recent meetings, to develop the IEC test standard, have been held in Rome, St Petersburg Russia, BSH Hamburg and at BSI London. Between 10 and 15 delegates attend the meetings. All business is now by e-mail. Recently, to try to accelerate the development process, inter-sessional work has been encouraged by animators for 'areas of concern'.

The terms of reference of WG10 are to clarify the IMO performance standard for INS (not an easy task) and thus to produce IEC 61924.

A problem that has had to be solved in the INS test standard (and to some extent in the track control standard) is that there is no requirement for one-to-one mapping between hardware/software components and functions. The manufacturer will almost certainly perform the different functional tasks in different physical and logical parts of the candidate system. This means that within the test standard a functional approach has had to be adopted. Fortunately, Germany's ISSUS institute, funded by BSH, are providing an excellent function/information flow and dependencies descriptive model of the navigation function of a ship. A manufacturer will have to declare functions, information flows and consequent dependencies between functions and finally which parts/components of the candidate system for compliance testing the required functions are performed. The caution and difficulty is that these are details that could well be competition sensitive.

Areas of concern for debate and agreement include, amongst others:

1. situation awareness;
2. mode awareness; the two most important concerns, and
3. information fusion, not confusion;
4. harmonised symbology and functionality of the inter-operable systems on the GIS;
5. risk control by manufacturer's safety assessment to IEC 61508 'Safety related systems' standard together with an appropriate safety integrity level;
6. integrity monitoring;
7. the ongoing discussion with those involved in other IEC standards that extend beyond the general intent of the parent standard e.g., ECDIS on radar.

With these areas of unresolved concern, it is not surprising that a firm completion date to Committee Draft for Voting (CDV) stage cannot be given. It will not be an easy task, even though there are many systems that purport to be an INS at sea now, that can inform the discussions and that need to have at least a framework of safety guidance. The best estimate is May 2001 for a CDV.

The Chairman thanked Mr Lee for his report and invited comments.

The Secretary stated that he understood the complexity of the problems facing the Working Group and realised that it would take further time to develop up to the CDV stage. The date for that CDV had already been put back on two occasions. This was not due to lack of effort by the Group, but due in part to the process of getting the performance standards agreed in IMO. He urged the Group to consider ways in which it could be seen that the Group was making progress.

It was agreed that as there was already available a draft of the "requirements" for INS, it could be circulated as a CD for comments. A target date of mid-2000 was agreed.

ACTION – WG10/Secretary

6.10 WG11 – Voyage data recorders – (future IEC 61996)

The Chairman invited Mr Winkley (UK) the Convenor of WG11 to introduce his report.

The first draft of the CDV for IEC 61996 document 80/223/CDV was submitted in March 1999, following the 6th Plenary session of WG11 held at BSI Chiswick in December 1999.

Comments have subsequently been received from, Belgium, France, Germany, Norway, Sweden, UK and USA.

A meeting to resolve the comments has been arranged for October 7th and 8th to be held at BSI, London, and calling papers issued.

Voting on the first draft has been successful with only France voting against.

A brief perusal of the comments suggests that many of the points can be considered as "Editorial".

This is as expected as the CDV is the first document of its kind produced specifically on the subject of Voyage Data Recorders.

Clearly there are some technical issues which will require in-depth discussion at the Comments Resolution Meeting, although in most cases it can be seen that the same ground has been covered many times in the past.

It is therefore anticipated that a satisfactory result will be obtained at the end of the meeting thereby allowing the document to proceed to the final voting stage.

The Editor of WG11 has been made aware of the importance in completing any resultant modification to the document immediately following the meeting to ensure no delays are experienced.

It is hoped that the target of January 2000 for adoption of the IEC 61996 will be more or less met.

Attention should now be turned to the various test houses to ensure that they are adequately advised and prepared for the first testing of Voyage Data Recorders.

The Chairman thanked Mr Winkley for his report and invited comments. There were none.

6.11 Speed and distance measuring equipment (SDME) – IEC 61023

The Secretary reported on this item. IEC 61023 – second edition had been published in July 1999. The revision had been developed by a Project group, by correspondence, with the Secretary as Project leader. The Group had identified that there were anomalies in the IMO Resolution performance standards. These had been identified and the Secretary had sent an input document to IMO MSC 71 and IMO NAV 45. At IMO NAV 45 the performance standards had been revised, and at the same time the carriage requirements in the revision of SOLAS Chapter V had been amended. In the normal course of events, the revised performance standards and the amendment to SOLAS Chapter V would be adopted at IMO MSC 72 in May 2000. This would then lead to a need to further revise IEC 61023. This could be done by the normal maintenance procedure.

The Chairman invited comments. Mr Beattie and Mr Lee of the UK were concerned that IMO had still not resolved the anomalies between the carriage requirements and the performance standards.

Many of the delegates took part in the ensuing discussion. These included Canada, Germany, Japan, Germany, and CIRM.

It was agreed that WG 10 during this current meeting would try to resolve the problem. It was felt that WG1 and WG 4A were also involved.

A preliminary document was produced by Working Group 10. This would be circulated to WG1 and WG4A. A consolidated document would be made available to the Secretary by mid January 2000 (the actual date to be obtained from IMO), for the Secretary to provide an IEC input to IMO MSC 72.

ACTION – CONVENORS WG1/WG4A/WG10/SECRETARY

6.12 Maintenance team 1 (MT1) – amendment of IEC 61174 – ECDIS

The first meeting, chaired by Mr M Rambaut (CIRM), was held in London at CIRM headquarters July, 1999.

Lt Daniel Mades, US Coast Guard Navigation Center was chosen as Convener.

The following tasks and task leaders for the Maintenance team were identified:

	Task	Task Leader
1	Incorporate the requirement and testing of RCDS, limit the data format to British Admiralty or NOAA	Chris Drinkwater
2	Write tests for Annex 6 of the IMO performance standard for back up arrangements	Per Larsen
3	Study the navigation related symbols, for a future edition	Lee Alexander
4	Re write the colour calibration procedure to be laboratory, production and service friendly and feed back the results to IHO	Hannu Pieponen
5	Look at references within 61174 to the Test data set and identify problems and changes required and feed back the results to IHO for incorporation into S52.	Neil Guy
6	Keep a watching brief on encryption with IHO for possible inclusion in a later edition.	Neil Guy
7	Review current standard for other minor problems and change where necessary	Martin Taylor

Milestones:

- a. Draft task outlines posted on ftp site in September 1999. This is in progress. As of September 22, one has been posted, and two additional have been promised to arrive shortly.
- b. Final drafts from each team for incorporation into the revised standard in April 2000.
- c. CDV ready for submission to Geneva in July 2000.

Using ftp and e-mail it should not be necessary to have another meeting until the CDV draft is available.

The detailed descriptions of the tasks follow:

Task 1 - Incorporation of RCDS

MT1 understood that now that IMO had incorporated the RCDS option into the ECDIS performance standard, that it was necessary to incorporate the requirement and suitable tests into the standard. Some discussion took place about the format for the data and it was decided that currently the two systems in use were British Admiralty and NOAA, and tests should be limited to these two only.

Task 2 - Incorporation of IMO back-up arrangements

This item caused much discussion mostly centred on the question of whether the IMO term ECDIS incorporated the hardware for back-up or only suitable interfaces. Some team members believed that as paper charts may be used as back up, so no testing was necessary in this area, however others believed that during type testing this facility should be checked at least with regard to passing planned routes electronically to another device. It was eventually decided that MT1 could do no more than try to draft tests to meet the current IMO requirement.

Task 3 - Navigation related symbols.

The team was made aware that as other equipment was being developed especially the UAIS, the symbols in the presentation library were being changed. It was clear that any work in this area would not meet the time-scales envisaged for MT1, however the work should be progressed with a future revision in mind. Lee Alexander presented a paper on symbols for use with AIS. (61174 MG 1/4)

Task 4 - Colours and symbols

It was made clear to MT1, that the problem here was the very difficult colour calibration procedure indicated for test and production. It was felt that the tolerances specified in the IHO S52 were difficult to meet, and that these had been carried over into the standard. It was decided to develop easier limits without compromising the performance. The result should be fed back to IHO.

Task 5 - ENC Test data set

A number of the inputs mentioned above were about problems with the Test data set. It was decided to pass these problems to IHO for clarification and to task IHO to provide a new TDS incorporating such items found to be a problem such as date-start and date-end objects.

Task 6 - Encryption

It was well understood by the team that some ENC data was proposed to be supplied in encrypted form. The reasons for this are not within the remit of MT1, however it would make testing difficult if a number of different encryption systems were to be used. After some discussion it was decided to leave the standard as it was for S57 data only and keep a watching brief through IHO on encryption for a future revision of the standard.

Task 7 - Miscellaneous improvements

It was decided that a small team should re-read the current standard and report any other anomalies without being tempted to do a re-write.

7 CONSIDERATION OF NEW WORK ITEMS (document 80/241/INF)

The Secretary had circulated document 80/241/INF before the meeting, as an updated list of possible new work items. This contained 11 items, and copies had been made available to all delegates.

7.1 Small boat radar

The largest population of maritime radars is for small boat use.

The Radio Regulations now include in Appendix S3 limits for spurious emissions from radars based upon peak envelope power (PEP). These Regulations apply to all maritime mobile radars, irrespective of whether they are part of the SOLAS carriage requirements.

The IEC 60936 series for radar, include the Appendix S3 requirements, and the test methods contained in ITU-R M.1177.

It would seem appropriate for IEC TC 80 to extend their technical standards to include these type of radars.

It is known that some National standards for small boat radars already exist e.g. Japan and USA. The IEC could use such standards as the basis for the development of an IEC TC 80 publication.

Test specifications already exist also in Germany and the Netherlands. In Japan there are various classes of radars for fishing boats. Various delegates expressed the view that such a standard was not wanted by Industry. If National authorities required such radars to be approved with regard to unwanted emissions, the testing methods already contained in IEC 60936-1 could be used.

There was no support for this item to be included in the future IEC TC 80 programme.

7.2 Electronic chart systems (ECS) equipment

TC 80 has completed its work on the first edition of IEC 61174 for ECDIS, and has currently formed Maintenance Team 1 to revise that publication.

The history of radar and ARPA over the last 20 years has shown a gradual merging of the technology, and the creation of variants such as ATA and EPA.

It is believed that such merging between ECDIS and ECS will evolve over the next two decades.

It is therefore proposed that TC 80 should put down a Stage 0 marker for this item, and regularly review the need to commence the development of an ECS standard.

Although IMO has not pursued at this time the development of ECS guidelines, the maturing of the technology and operational use of ECDIS and ECS, is likely to reopen this question in IMO over the next few years. IEC TC 80 should anticipate this situation, and be alert to the need for new standards.

It is known that there exist National ECS standards in some countries e.g. Japan, Italy, Russia and the USA. These standards could provide a detailed basis for future development within TC 80.

The Chairman invited the delegates to express their views on such a need for IEC TC 80 to include this item in their future programme.

Finland felt that IEC had no mandate to proceed, as IMO had expressed no requirement for such equipment. Canada supported this view. Canada also felt that it was not needed by Industry. Russia commented that there were already many thousands of such equipments fitted on SOLAS vessels.

There was no support for this item to be included in the TC 80 future programme.

7.3/7.4/7.5 Merger of radar/plotting standards – radar/AIS compatibility – symbology (radar/ARPA/ATA/EPA/ECDIS/UAIS)

It was decided to take these three items together, as they were so inextricably connected.

The merger of the radar (IEC60872 series) and plotting (IEC 60936 series) standards is a direct consequence of the evolution of these technologies over the last two decades. This has brought more commonality to the IEC 60872 and IEC 60936 series since their first publication in 1987 and 1988 respectively. The recent revision of both series has highlighted this, and naturally leads to the proposal that the two series should be merged into one. As this involves two different series of standards, it cannot be achieved within the normal maintenance cycle procedures. A new work item proposal will be required.

The development of the UAIS standard as IEC 61993-2 has highlighted the urgent need for the development of technical standards for the compatibility of the display of information within radar/ARPA/ATA/EPA/ECDIS and UAIS, and the compatibility of the interfaces between such equipment.

One of the most time consuming problems that has faced TC 80 over the years has been to develop a compatible group of symbols for radar/ARPA/ATA/EPA/ECDIS. This has involved IEC, IMO and IHO in particular. The current development of UAIS further complicates the task. There is an urgent task to maintain this compatibility.

The Chairman (Mr D Hannah) of WG 1 (radar/ARPA) and Convenor (Mr R Lee) of Working Group 1 and Working Group 8A (UAIS) gave the meeting the background to these proposals.

There was general agreement from the delegates that the new work was necessary.

It was agreed that all three items would be included as Stage 0 in the programme. It would be the responsibility of WG 1/WG8A and Maintenance Team 1 to advise the Secretary on how these items should be progressed, eventually into new work item proposals. It was essential for WG1 to complete their work on 60936-3 (chart radar) and come to a decision (in co-operation with MT1, with regard to the need for the development of 60936-4(back-up to ECDIS). The present estimate was that towards the end of 2000 the Working Groups should be able to advise the Secretary on how to proceed.

ACTION – WG1/WG8A/MT1/SECRETARY

From these discussions there emerged also the need for TC 80 to consider “new technology” radars. The future technology for the modulation techniques, the transmission device, the aerial and display characteristics would need to be considered. Some of this would involve natural evolution. The major trigger for such work was derived from the pressures in the ITU to reduce unwanted emissions, in order to use the radio frequency spectrum more efficiently.

It was agreed that a new item would be included in the programme at Stage 0, with WG1 taking the responsibility of advising the Secretary how and when to proceed with a new work item proposal (NWP). The best estimate of the time scale appeared to be early 2001 for an NWP.

ACTION – WG1/SECRETARY

7.6. Bridge Watch alarms

Bridge watch alarms monitor activity on the bridge of a ship and generate an alarm if activity is not observed. They assist safety therefore by detecting if the bridge crew have become indisposed through fatigue, illness, piracy etc.

Bridge watch alarms are in use in some ships. A common technical arrangement involves a panel that requires the pressing of a reset button every 15 minutes. The lack of a reset generates an audible alarm on the bridge followed after a period by alarms elsewhere in the ship.

The Maritime Safety Committee of the IMO has decided that the sub-Committee on Safety of Navigation should develop performance standards for a bridge watch alarm in the interests of standardisation. The work should commence at NAV 46 in 2000/2001. This proposal is related to the work in TC 80 on INS, IBS, General requirements and digital interfaces etc.

Germany was of the view that this item was part of the development of the standard for Integrated Navigation systems (INS). The UK (Mr A Messer) informed the delegates that this item was also of great interest to IEC TC 18.

It was agreed that IEC should proceed with this item at Stage 0, and await the outcome of the discussions in IMO at NAV 46. It should be developed as joint work with IEC TC 18. The Secretary would write to the Secretary of TC 18 and agree the detail of how the two Committees would proceed.

ACTION - SECRETARY

7.7 Small craft VHF with DSC

Currently there is no International Standard for a VHF radiotelephone with DSC for non-convention (small) craft. Since the introduction of GMDSS, and with the future plans to remove watchkeeping on Channel 16 by 2005, there is a need for small craft to be compatible with VHF DSC. With the clarification at ITU SG8 of the classes of DSC described in Recommendation ITU-RM.541 and with the removal of class F, any new standard should meet the class D requirement. Europe has already adopted a standard ETS 301 025, that was developed initially in the UK. In the USA, RTCM SC101 has also developed a standard. These two regional standards would provide a firm basis for the development of an IEC global standard.

This proposal would require a new work proposal and could be developed within Working Group 8.

The USA supported the proposal that IEC TC 80 should develop a standard. The Chairman invited delegates to indicate whether they would be willing to participate in the development of such a standard. In addition to the USA, the UK (Mr A Abbas) and CIRM indicated a willingness to assist in the development. The Secretary reminded delegates that we would require 5 National delegations as a minimum to support this development.

It was agreed that the Secretary would raise a new work proposal (NWP). It would require a new reference number, as it was not part directly of the GMDSS (IEC 61097 series).

ACTION – SECRETARY

7.8 Track control – High speed craft (HSC)

This is a natural development of the work in TC 80 and ISO/TC8/SC6 on standards for high speed craft (HSC). It should be developed in TC 80 WG 1A as part of the development of IEC 62065. This is a joint project with ISO /TC8/SC6.

The new project should also consider the problem of track control in the vertical plane for high-speed craft.

Working Group 1A agreed that this item was necessary, but did not wish to delay the current development of IEC/ISO 62065.

It was agreed that it should be put into the TC 80 programme at Stage 0 and that WG1A should advise the Secretary of the detail and time for a new work proposal.

ACTION – WORKING GROUP 1A/SECRETARY

7.9 Weather routeing

This item is related to a shipboard weather station and optimum voyage management. The physical risks in shipping encompass, among others, the following:

1. Sea worthiness (including crew training and task management);
2. Weather routeing capability;
3. Collision avoidance;
4. Grounding avoidance.

Sea worthiness is covered in many IMO and Classification Society standards. Aids to avoid collision and grounding are covered by many IMO/IEC performance and test standards for bridge equipment. Equipment for weather prediction and the weather routeing advice to the Officer of the Watch do not appear to have any IMO/IEC standards. The implementation of validated weather models has allowed accurate on-board long-range wind and wave forecasting, over at least five days, for optimum voyage management. Heavy weather damage prevention lead to time and fuel savings, scheduling reliability, reduced cost of off-board weather routeing services, prevention of cargo loss and damage, prevention of loss of life and vessel, reduced ship repairs, reduced vessel down time, leading to safer and less costly ship operations.

The technology for seamless integration into IBS and/or INS is being promoted by Industry.

Standardisation of the operating performance/presentation and routeing guidance for optimum voyage management would lead to a reduction in operating performance costs for the meeting of safety requirements. There are also consequential advantages that can be discussed. The proposal is related to current TC 80 standards for track control, ECDIS, and IBS/INS.

IEC TC 80 should be leading in the development of standards for maritime “Weather routeing”.

This item was introduced by the UK (Mr R Lee).

There was no support for this item to be included in the TC 80 future work programme.

7.10 VTS – UAIS

There is no global core of technical standards for minimum operating and information presentation for VTS.

It has already been proposed that there are safety benefits in presenting timely information about a VTS area to the mariner. Examples are an “area to be avoided” or a “preferred route to be taken” that will automatically be available on an ECDIS with a unique symbology. To implement the further development of a “remote pilotage” scheme will require information from the mariner of the ships ability to perform the remote pilotage.

The development of UAIS for the ship/shore as an information system is progressing. There is therefore already a need to develop common standards of operation and information presentation of the UAIS in a VTS facility for interoperability and safety reasons.

This is related to current IEC standards for radar/ARPA/ECDIS and UAIS. IEC TC 80 should be seen to be in the forefront of the development of such standards.

IALA supported this item. They were an A Liaison member of TC 80 but unfortunately were not represented at the meeting.

Russia/France/UK and USA commented on the proposal. There was definitely a case for ensuring compatibility between shore based UAIS displays and those that were shipborne and receiving such UAIS information.

It was agreed to introduce this item at Stage 0 into the programme. WG1 and WG8A should liaise with IALA to define what is required and keep the Secretary informed of the detail and time scale of a new work item proposal.

ACTION – WG1/WG8A/IALA/SECRETARY

7.11 Radar unwanted emission and frequency requirements

The first reported example in ITU of interference from maritime radar systems into other services was in about 1991. Since that time there has been continuous pressure from other radio services for radars to reduce their unwanted emissions, particularly into bands that are either not allocated to radar, or into bands in which radar has either to share with other services or operate on a secondary basis.

This problem is getting worse, and the pressures on radar system designers are increasing.

At the present time the role of TC 80 is one of resigned reaction to the ITU new regulations.

It is the view of the Secretary TC 80 that it needs to be pro-active and contribute in the International discussion groups e.g. ITU, to the realities of the maritime Industry meeting the safety requirements that are imposed upon them. This involves not only the protection of their current frequency allocations, but also providing positive information on what is possible with regard to practical limits of unwanted emissions. This is critical to the radar industry. In the view of the Secretary this is probably the most critical issue that needs to be addressed by TC 80.

IMO needs to be alerted, and to realise that as long as SOLAS Chapter V contains no reference to the need for S Band radar, there is no defence in ITU to protecting the band 2 900 – 3 100 MHz from sharing by other services. This could lead to the imposition of unacceptable sharing criteria for radar systems.

This item requires Working Group 1 to include in their work programme a pro-active response to the current work of ITU on unwanted emissions for radar systems.

The delegates agreed on the importance of this item. It was also agreed that this did not require a new work item proposal. It would be included in the future work of Working Group 1.

ACTION – WORKING GROUP 1/SECRETARY**7.12 GMDSS/radiocommunication – unwanted emission and frequency requirements**

This item is part of the ITU programme to determine acceptable levels for unwanted emissions for all radio services.

Up until the present time, the proposals within ITU have been consistent with current practice for maritime radiocommunication systems.

However, knowing that the maritime radiocommunication industry is a relatively small part of the global market, it should be realised that many of the other services are insatiable to acquire more frequency spectrum for their future activities. No current allocation should be assumed to be safe “for life”. It is therefore proposed that TC 80 Working Group 8 should take a more pro-active approach to protecting their current frequency allocations and to the development of unwanted emission limits for their systems.

This does not necessarily require a new work item proposal, but requires discussion on how it should be handled in TC 80.

The delegates agreed that Working Group 8 needed to be more pro-active in their reaction to current and future ITU requirements. This did not require a new work item proposal.

ACTION – WORKING GROUP 8/SECRETARY**7.13 Radar target enhancer (RTE)**

This item was not included in document 80/241/INF. The proposal was received by the Secretary directly from the German National Committee.

The proposal states that as radar target enhancers are listed in annex A.2 of the directive 98/85/EG, dated 1998-11-11, it would be appreciated if TC 80 could take this proposal into account during discussions of possible new work items.

Unfortunately there was no German delegate present to introduce the item. The Secretary took the action to invite Germany to expand on their proposal. In the meantime, the Secretary would place the item on the programme at Stage 0.

ACTION – SECRETARY**7.14 Summary of the decisions concerning the new work item proposals**

ITEM	DECISION	ACTION
Small boat radar	Delete	
ECS equipment	Delete	
Merger of radar/plotting standards	Stage 0	WG1/Secretary
Radar/UAIS compatibility	Stage 0	WG1/WG8A/Secretary
Symbolology – radar etc	Stage 0	WG1/WG8A/MT1/ Secretary
New technology radar	Stage 0	Secretary
Bridge watch alarms	Joint with TC18	Secretary
Small craft VHF with DSC	New work proposal	WG8/Secretary
Track control - HSC	Stage 0	WG1A/Secretary
Weather routing	Delete	
VTS	Stage 0	WG1/IALA/WG8A/ Secretary
Radar unwanted emission/frequency allocations	Within scope of WG1	WG1
Radio unwanted emissions/frequency allocations	Within scope of WG8	WG8
Radar target enhancer	Stage 0	Germany/Secretary

8 REVIEW OF IEC TC 80 STANDARDS (MAINTENANCE CYCLES)

The Secretary had circulated document 80/242/INF. This contained proposals for the maintenance of all current TC 80 standards. The summary of the maintenance programme for TC 80 would be contained in the Strategic Policy Statement (IEC Form 15).

Each delegate had received during the meeting a copy of document IEC 53/AC – New procedures for the maintenance of IEC Publications and new work proposals (1998-03-20).

The proposals in 80/242/INF were discussed and various minor amendments were made. It was agreed to withdraw IEC 61110 (OMEGA) and IEC 61135 (DECCA), as both systems were no longer in use.

IEC 61174 was added with a publication date of 2001 for the revision under Maintenance Team 1.

The revision of IEC 61209 (IBS) was brought forward to 2002, the revision of IEC 61162-2 to 2001 and IEC 61097-3 (DSC) to 2001.

IEC 61023 (SDME) had recently been published (1999-07). IMO at NAV 45 had further amended the performance standards. TC 80 would be introducing an input document to IMO MSC 72 in May 2000, at which time the new performance standards should be approved. The performance standards may or may not be further modified resulting from the IEC input proposals. The further revision of IEC 61023 was amended to be 2002.

The agreed maintenance cycle programme is included with the Strategic Policy statement at Annex D.

The Chairman of WG 8 had provided to the Secretary a detailed proposal for the maintenance of the IEC 61097 and 61993 series. This would be used by the Secretary to detail the future maintenance programme of these publications. It is included as Annex F.

9 LIAISON BETWEEN IEC TC 80 AND OTHER IEC COMMITTEES (IEC TC 18 and IEC TC 102)

9.1 IEC TC 18 – Electrical installation on board ships

Mr K Fisher (UK) reported on a recent meeting he had with the Chairman and Secretary of IEC TC 18. This concerned mostly discrepancies between IEC 60945 and IEC 60533.

In summary they are:

Scope – The design of EMC standards is given in IEC Guide 107. If a product standard or product family standard exists it takes precedence over other more general standards. The scope of IEC 60945 and 60533 should therefore be different as 60945 reflects the requirements of IMO Resolution 694 whilst 60533 reflects those of IMO Resolution 813.

The link between them is given in 60533. The scope of 60533 should refer to IEC 60945 as a “product family” standard.

Table 6 IEC 60945 – Slow transients (surges) are specified for AC power ports only, because no navigation and radiocommunication equipment is now built for DC power supplies. Any DC power ports on these equipments are intended to be supplied from batteries which do not exhibit surge phenomenon.

Table 4 IEC 60533 – The performance criteria are missing for electrostatic discharge (B) and electromagnetic field (A). These should be added before publication.

Test distance – TC 80 continues to support a 3m test distance because a 3m test range is invariably available in manufacturing companies and test houses. Larger ranges involve considerably extra expense.

Emission test procedures – Section 9.2.2 of 60945 calls up a quasi peak detector which reflects the CISPR test method. I have been approached by Rohde and Schwarz who do not make a quasi peak and wish to use a peak detector. IEC 60945 is currently under review and the current proposal is to permit the use of a peak or quasi peak detector with the limit increased to 30 dB μ V/m for the peak detector.

There was a need to improve the direct liaison between some TC 80 Working Groups and TC 18. In particular there was concern with the application of the future IEC 61162-3 to all ships.

The Secretary would send the Convenors details of WG5, WG6 and WG10 to Secretary TC 18.

ACTION - SECRETARY

9.2 TC 102 – Equipment used in radiocommunications for mobile services and for satellite communication systems

This was a new IEC Committee that had approached TC 80 with regard to liaison. This involves our work on radiocommunication standards in WG8. TC 102 develops standards concerned with the characteristics and methods of measurement

The Secretary reported that he received the output papers of TC 102, and the main interest so far for TC 80 had been the revision of the IEC 60489 series – methods of measurement for radio equipment used in the mobile services. He was in touch with the Convenor and Chairman of WG8, and when maintenance work started in TC 80 on the 61097 series, there may be materiel in the 60489 series that could be used.

10 LIAISON BETWEEN TC 80 AND ISO TC 8 – Ships and marine technology

10.1 SC 5 - Ship's bridge layout (future ISO 14612)

The Convenor of SC 5 (Mr Molstrand) had sent his apologies and a report of the SC 5 activities. This had been circulated at the meeting as document 80/Southampton/Secretariat/03.

Capt J Collins (UK) had been attending the SC 5 meetings and was able to update the report. There had been a recent meeting to attempt to resolve the comments received on the 2nd CD for ISO 14612. The Working Group had been dissolved and a small group of experts would resolve the comments, before going to the ISO DIS stage. There was a target date for the DIS of early in 2000. The title had been modified to "Additional requirements and guidelines for centralized functions and periodic one-person operation".

10.2 SC 6 – Navigation

The Secretariat of SC 6 (Japan) had sent their apologies for absence from the meeting, and a report of the activities of SC6. This has been circulated to the meeting as document 80/Southampton/Secretariat/03.

In summary:

Current items under development:

1. DIS 613 – Magnetic compasses, binnacles and azimuth reading devices – Class B
2. DIS 694 – Positioning of magnetic compasses in ships
3. DIS 9875 – Marine echo-sounding equipment
4. DIS 11606 – Marine electromagnetic compasses

New work items:

1. NWI – Content, quality and updating of electronic chart system (ECS) database (this had been voted upon, and not been approved. However it was known that there would be an attempt at the SC6 Plenary meeting in October 1999 to reopen the matter)
2. NWI – Searchlights for high speed craft (approved)

Mr Katayama informed the meeting that he was able to represent SC6. There was a discussion concerning electromagnetic compasses (ISO 11606) and the IMO Resolution for Transmitting magnetic heading devices (TMHD) – IMO 86 (70) Annex 2. Mr Katayama informed the meeting that there would be a NWI on this matter presented at the Plenary meeting of SC 6 in October 1999.

In addition to the above, there was a joint programme of SC 6 with IEC TC 80. The details are in the table below.

Project	TITLE	Latest IEC reference	Latest ISO reference	STATUS
11674	Heading control systems	80/219/CDV	ISO/DIS 11674	The comments on the ISO/DIS and IEC/CDV have been incorporated into an ISO FDIS. This will be circulated as an IEC DIS.
16273	Night vision equipment for HSC	80/205/INF	ISO/TC8/SC6 N 25	A draft is being prepared in the Joint Working Group
16328	Gyro-compasses - HSC	80/228/CDV	ISO DIS 16328	Voting terminates on 1999-12-31
16329	Heading control systems - HSC	80/233/DC	ISO/CD 16329.2	Comments were requested by 1999-08-27 on a 2 nd Committee draft, and are currently being processed by ISO

10.3 SC 9 - General requirements

The only item of interest to TC 80 at this time is a new work item (NWI) on "Terms, abbreviations and graphical symbols for navigation". This originated from Germany and was due to complete voting on 1999-08-25. Many attempts by the Secretary to obtain the result of voting had failed. There was concern in TC 80 that such new work would impact on the TC 80 work on symbology. The Secretary would need to await the result, and if successful, seek the views of TC 80 on how to proceed.

ACTION – SECRETARY

10.4 SC 10 – Computer applications

There were two current projects of interest to TC 80:

1. .1 Standard guide for implementation of a Fleet management system – this has not been circulated as a DIS. A working draft is available
2. .2 General principles for the development and use of programmable electronic systems in marine applications (Convenor – Mr A Messer (UK))

SC 10 will be having a Plenary meeting on 19 October 1999, and Mr Messer would make the outcome available to the Secretary. The Secretary of TC 80 would circulate a copy of the CD when available for item 10.4.1 above.

ACTION – Mr Messer/Secretary

11 LIAISON BETWEEN TC 80 AND OTHER ORGANIZATIONS

11.1 ETSI

The report of WG8 indicates (see 6.7) that cooperation has come to a standstill. There is a general view that at this time this has no significant effect on the activities of TC 80. However, should TC 80 commence a maintenance programme of the IEC 61097 series, problems will almost certainly arise.

ACTION – SECRETARY/CONVENOR WG8

11.2 IALA

IALA had shown an interest in various matters concerned with UAIS. A former member was taking an active part in the work of WG 8A. They should also be approached with respect to the revision within the maintenance cycle of IEC 61075 – LORAN-C/CHAYKA.

ACTION - SECRETARY

11.3 NMEA

Frank Cassidy was about to retire. The Chairman of TC 80 and the Convenor of WG6 (Mike Fox) expressed their sincere thanks for all the efforts by Frank towards the development of the IEC 61162 series. This was fully endorsed by all the delegates.

The USA and RTCM confirmed that the new contacts within NMEA were Leo Luff and Larry Anderson. The Convenor of WG 6 was invited to contact them with a view to continuing the close co-operation between NMEA and TC 80.

ACTION - CONVENOR WG6

12 PROGRESS IN INTERNATIONAL HARMONIZATION

JAPAN (Mr Y Abe) reported that the view of the Government of Japan was to use TC 80 standards. Only selected standards would be translated.

The USA (Mr J Roeber) stated that there was increased usage of TC 80 standards. The use was market driven.

RTCM (Mr W Adams) stated that only IEC 60945 was mandatory. For the remainder the USA relied upon self-assessment by manufacturers.

USA (Mr J Hersey) said at this time IEC GMDSS standards were not mandatory. The position was being reviewed. IEC standards are a potential solution for UAIS.

Canada (Mr P Leenhouts) concurred with the USA view that IEC UAIS standards may be the answer for International harmonization.

13 ANY OTHER BUSINESS

13.1 Convenors of TC 80 Working Groups

The immediate problems concern WG 6 and WG 8. Mr Leskze suggested that the CIRM meeting in December 1999 could be used to discuss the future Convenors for WG 6/8.

ACTION – SECRETARY/CIRM

With regard to WG10, the Secretary had reported earlier that a Mr Podesta hoped to attend the next meeting of the Working Group and take up the role of Secretary to the Group.

ACTION – WG10

13.2 Updating of the membership of Working Groups

It was essential that the lists of members of the Working Groups and Maintenance teams were regularly updated and posted onto the IEC Web site. The action was on the Convenors to send their latest lists (in electronic form) to the Secretary by 1999-11-10 at the latest.

**ACTION – WG1(Mr R Lee)/WG1A (Mr H Leskze)/WG4A (Mr R Lee)/
WG5 (Mr K Fisher)/WG6 (Mr M Fox)/WG8 (Mr M Rambaut)/WG8A (Mr R Lee)/ WG10 (Mr A
Gambadella)/MT1 (D Mades)**

13.3 Presentation by the representative from Central Office

Mr Charles Jacquemart gave a presentation to the delegates of recent changes and current developments in the IEC.

The primary headings of the presentation were:

1. Some statistics of the IEC;
2. Acceptance criteria for new work item proposal (NWIP);
3. Courses of action on Committee draft for voting (CDV);
4. Time limits for the development of IEC standards;
5. New procedures for the maintenance of IEC Publications;
6. Types of IEC Publications;
7. Current developments in the IEC;
8. Use of IT tools in the IEC;
9. IEC's World Wide Web site (www.iec.ch);
10. Performance of IEC TC 80 (number of standards/year).

13.4 Retirement of members from IEC TC 80

The Chairman expressed his sincere thanks to all those members of TC 80 who had contributed much to our success over the years, and were known to be retiring before the next meeting of the Committee. Not all were present at this meeting. Particularly mentioned were Frank Cassidy for his work in WG6: John Beattie for his work in many Working Groups (a founder member of WG1/2, 4, 4A, 5, 7, 9, and 10): Jack Roeber particularly for his work as Chairman of WG 9: Mark White also a founder member of WG1/2, and for his work as Convenor of WG 7: George Thompson for all his efforts as Assistant Secretary of TC 80: Michael Fox as Convenor of WG6 and previous Convenor of WG 4A and WG8.

The Chairman realised that others may retire before the 2001 Plenary meeting and apologised if any names had been left out.

Members were aware that this was the last meeting for Peter Griffiths as Secretary TC 80, although it was known that like a bad penny he may appear in the future as a member of the UK delegation. The Chairman thanked Peter for all his efforts since 1987 in helping to make TC 80 the success it is to-day, and on behalf of the Committee wished him a happy semi-retirement.

13.5 Formal thanks to the Maritime and Coastguard Agency (UK)

The Chairman thanked the MCA for providing the facilities for the meeting, and in particular to Mr K Fisher and Mrs Anne Sutherland for all their efforts in making the meeting such a success.

The dinner at the Royal Southern Yacht Club had been voted a great success and was attended by 50 delegates and their partners. We had been fortunate in having as our Guest Speaker – Mr Maurice Storey the Chief Executive of the MCA. His address, full of current and interesting maritime

information was much appreciated by all. The Chairman would be writing to the MCA to formally express his thanks on behalf of TC 80.

14 DATE AND LOCATION OF THE NEXT MEETING

The Chairman informed the delegates that over the last 20 years since the inaugural meeting their had been 12 Plenary meetings. The locations had been Berlin, Brighton, Brussels, Copenhagen, Florence, Kista, London (twice), Milan, Paris, Southampton and Stockholm.

It was noticeable that there had not been meetings in either Japan or the USA. Over the years both of these countries had strongly supported the work of TC 80.

He would therefore hope to hold the next meeting in either the USA or Japan in the autumn of 2001.

The USA (Mr J Hersey) responded by stating that he would look into the possibility of hosting it at the USCG R and D Centre in Groton, USA.

Canada (Mr P Leenhouts) also offered to examine the possibility of hosting it in Canada, with probably Ottawa as the location.

Japan (Mr Y Abe) would also look into the possibility of hosting the next meeting in Japan.

The Secretary informed the meeting that he had received an invitation from the Italian National Committee, who were hosting the IEC General meeting in Florence in September 2001, to include a Plenary meeting of IEC TC80 as part of that general meeting. They required an answer by mid November 1999.

The Chairman invited the USA, Japan and Canada to contact the Secretary on this matter, so that a firm decision with regard to location and dates could be taken by August 2000 at the latest.

**ACTION – USA (Mr J Hersey)/ CANADA (Mr P Leenhouts)/
JAPAN (Mr Y Abe)/Secretary**

15 CLOSE OF THE MEETING

The Chairman suggested to the delegates that the next meeting of the Committee should consist of two days of Plenary meetings. The Working Groups could meet for two full days either before or after the Plenary meeting.

He thanked all the delegates for their assistance during the Plenary and declared the meeting closed.

The delegates showed their appreciation of the Chairman's fair and understanding manner in which he had conducted the meeting by a prolonged round of applause.

ANNEX A**LIST OF DOCUMENTS ISSUED AT THE PLENARY MEETING**

80/Southampton/.....	Title
Secretariat/01	List of delegates
Secretariat/02	Liaison report from ISO/TC8/SC6
Secretariat/03	Liaison report from ISO/TC8/SC5
Secretariat/04	List of IEC TC 80 documents from 09/1997
Secretariat/05	Report WG1 (R Lee)
Secretariat/06	Report WG1A (H H Leskze)
Secretariat/07	Report WG 4A (R Lee/L Allen)
Secretariat/08	Report WG5 (K Fisher)
Secretariat/09	Report WG6 (M P Fox)
Secretariat/10	Report WG8 (M Rambaut/A Godts)
Secretariat/11	Report WG8A (R Lee)
Secretariat/12	Report WG10 (R Lee/A Gambadella)
Secretariat/13	Report WG11(C Winkley)
Secretariat/14	Report MT1(D Mades)
Secretariat/15	Status of Joint ISO/IEC Projects
Secretariat/16	List of documents – Plenary 1999
Central Office/17	Recent changes and current developments in IEC

ANNEX B**LIST OF IEC TC 80 DOCUMENTS FROM
OCTOBER 1997 (A)****LIST OF IEC TC 80 PUBLICATIONS (B)****FUTURE PUBLICATIONS (C)****A - DOCUMENTS**

80/162 1997	RM	Minutes of the 1997 TC 80 Plenary meeting
80/163 1997	RVD	Report of voting on 80/146 - 61097-5
80/164 1997	RVD	Report of voting on 80/147 - 61097-9
80/165 1997	RVN	Report of voting on 80/155 - 610945
80/166 1997	RVN	Report of voting on 80/156 - 61023
80/167 1997	RVC	Report of voting on 80/139 - 61162-2
80/168 1997	RVC	Report of voting on 80/140 - 61097-8
80/169 1997	RVC	Report of voting on 80/141 - 61174
80/170 1997	RVC	Result of voting on 80/149/CDV - 60936-2
80/171 1997	RVN	Report of voting on 80/161 - Track control (Joint IEC/ISO) - future 62065
80/172 1998	RVS	Report of voting on 80/151/SR - DECCA
80/173 1998	RVC	Result of voting on 80/150/CDV - 60872-1
80/174 1998	CDV	61993-1 - AIS DSC
80/175 1998	CD	61162-4, F 1
80/176 1998	CD	61162-4, F 2
80/177 1998	CDV	61097-10 - Inmarsat-B
80/178 1998	CDV	61023 - SDME
80/179 1998	DIS	61108-2 - GLONASS
80/180 1998	WG	Revised membership WG1
80/181 1998	WG	Revised membership WG4A
80/182 1998	WG	Revised membership WG6
80/183 1998	WG	Membership WG10
80/184 1998	WG	Membership Project team 61023
80/185 1998	WG	Revised membership WG8

80/186 1998	WG	Membership WG11
80/187 1998	INF	ISO TC8/SC6 - new work item proposal – night equipment
80/188 1998	INF	ISO TC8/SC6 - HSC-gyro-compasses - ISO 16328
80/189 1998	DIS	61162-2 - High speed data
80/190 1998	DIS	61174 - ECDIS
80/191 1998	DIS	61097-8 - Watch receivers
80/192 1998	DIS	60872-1 - ARPA
80/193 1998	DIS	60936-2 - HSC Radar
80/194 1998	RVC	60872-2 - ATA
80/195 1998	DIS	60872-2 - ATA
80/196 1998	INF	ISO 16329 - HSC - heading control systems
80/197 1998	INF	ISO TC8/SC6 - marine electromagnetic compasses
80/198 1998	RVC	Result of voting on 80/154/CDV - IBS
80/199 1998	DIS	IEC 61209 - IBS
80/200 1998	RVD	Result of voting on 80/179/DIS - IEC 61108-2 – GLONASS
80/201 1998	RVD	Result of voting on 80/190/DIS - 61174 – ECDIS
80/202 1998	INF	ISO/IEC CD 11674 - Resolution of comments (Heading control)
80/203 1998	CDV	61162-1 - 2 ND Edition
80/204 1998	INF	ISO TC8/SC 6 - N26 - Echo-sounding equipment
80/205 1998	INF	Night vision - Joint IEC/ISO 16273
80/206 1998	RVD	61162-2
80/207 1998	RVD	60872-1
80/208 1998	RVD	61097-8
80/209 1998	CDV	60936-1
80/210 1998	RVD	60936-2
80/211 1998	RVC	61993-1
80/212 1998	FDIS	61993-1

80/213 1998	RVC	61023
80/214 1998	FDIS	61023
80/215 1998	RVC	61097-10
80/216 1998	FDIS	61097-10
80/217 1998	NP	61162-1
80/218 1998	NP	61108-1
80/219 1998	CDV	IEC/ISO 11674 – Heading Control Systems (autopilots)
80/220 1998	RVD	60872 –2 - ATA
80/221 1999	RVD	80/199/FDIS – 61029 – IBS
80/222 1999	RVD	80/212/FDIS – 61993-1
80/223 1999	CDV	61996 – VDR
80/224 1999	RVN	80/217 – 61162-1
80/225 1999	RVN	80/218 – 61108-1 – GPS revision
80/226 1999	INF	61174 – ECDIS – Maintenance plan
80/227 1999	CDV	60872-3 – EPA
80/228 1999	CDV	IEC/ISO 86328 – Gyro-compasses for high-speed craft
80/229 1999	INF	ISO 9875 – Echo-sounding equipment – comments/resolution on CD
80/230 1999	DA	1999 – Plenary – draft Agenda
80/231 1999	RVD	Report of Voting on 80/216/FDIS – IEC 61097-10 - INMARSAT-B
80/232 1999	RVC	Result of voting on 80/203/CDV – 61162-1 2 nd edition
80/233 1999	INF	ISO 16329 – 2 ND Committee draft – heading control systems (HSC)
80/234 1999	RVC	80/209/CDV – 60936-1 - Shipborne radar
80/235 1999	FDIS	60936-1 – Shipborne radar
80/236 1999	RVD	80/214/FDIS – SDME
80/237 1999	MCR	IEC 61174 – ECDIS – Maintenance report
80/238 1999	RVC	IEC 61162-1 – Result of voting on CDV
80/239 1999	CIR	Appointment Assistant Secretary of IEC TC 80 - M Rambaut
80/240 1999	FDIS	IEC 61162-1 2 ND Edition

80/241 1999	INF	IEC TC 80 – New work items for consideration
80/242 1999	INF	Form 15ae – Strategic Policy statement – maintenance cycles for TC 80 standards
80/243 1999	AC	Extension - term of Office TC 80 Chairman
80/244 1999	RM	Minutes of the TC80 Plenary meeting - 1999

B - IEC TC 80 PUBLICATIONS

1	IEC 872:1987	AUTOMATIC RADAR PLOTTING AIDS(ARPA)
1a	IEC 872:1991	AMENDMENT No 1 - ARPA VIDEO SYMBOLS
2	IEC 936:1988	SHIPBORNE RADAR
3	IEC 945:1988	GENERAL REQUIREMENTS – NAVIGATIONAL EQUIPMENT
3a	IEC 945:1992	AMENDMENT No 1 - IMMUNITY TO EM ENVIRONMENT
4	IEC 1023:1991	MARINE SPEED AND DISTANCE MEASURING EQUIPMENT (SDME)
5	IEC 1075:1991	LORAN-C RECEIVERS FOR SHIPS
6	IEC 1097-1:1992	RADAR TRANSPONDER - MARINE SEARCH AND RESCUE
7	IEC 1110:1992	OMEGA/DIFFERENTIAL OMEGA-RECEIVERS FOR SHIPS
8	IEC 1135:1992	DECCA NAVIGATOR SYSTEM:RECEIVERS FOR SHIPS
9	IEC 945:1994	SECOND EDITION - GENERAL REQUIREMENTS – NAVIGATIONAL EQUIPMENT
10	IEC 1097-3:1994	DIGITAL SELECTIVE CALLING
11	IEC 1097-4:1995	INMARSAT-C AND EGC
12	IEC 1097-2:1995	COSPAS-SARSAT 406 MHz EPIRB
13	IEC 1097-6:1995	NAVTEX RECEIVERS
14	IEC 1162-1:1995	DIGITAL INTERFACES
15	IEC 1108-1:1996	GNSS - PART 1 - GPS
16	IEC 1097-7:1996	VHF TRANSCEIVERS
17	IEC 1097-12:1996	VHF TRANSCEIVERS - PORTABLE -SURVIVAL CRAFT
18	IEC 945:1996	THIRD EDITION - GENERAL REQUIREMENTS (GMDSS AND NAVIGATION)
19	IEC 61097-5:1997	L-BAND EPIRB's
20	IEC 61097-9:1997	MF/HF AND HF TRANSCEIVERS
21	IEC 61097-12:1997	VHF TRANSCEIVERS (as above – bilingual edition)
22	IEC 61108-2:1998	GNSS – PART 2 – GLONASS
23	IEC 61174:1998	ECDIS
24	IEC 61162-2:1998	DIGITAL INTERFACES – PART 2 – High speed transmission
25	IEC 60872-1:1998	RADAR PLOTTING AIDS – PART 1 – ARPA
26	IEC 61097-8:1998	GMDSS – PART 8 – Watchkeeping receivers
27	IEC 60936-2:1998	RADAR – PART 2 – HIGH SPEED CRAFT(HSC)
28	IEC 60872-2:1999	RADAR PLOTTING AIDS – PART 2 – AUTOMATIC TRACKING AIDS (ATA)
29	IEC 61209:1999	INTEGRATED BRIDGE SYSTEMS (IBS)
30	IEC 61097-10:1999	GMDSS – PART 10 – INMARSAT-B
31	IEC 61993-1:1999	AUTOMATIC IDENTIFICATION (DSC)
32	IEC 61023:1999	SDME – 2 nd edition

C - FUTURE PUBLICATIONS

- 1 IEC 61108 GLOBAL NAVIGATION SATELLITE SYSTEMS (GNSS)
PART 3 - GPS/GLONASS
PART 4 - DIFFERENTIAL GPS/GLONASS
- 2 IEC 61162 DIGITAL INTERFACES
PART 3 - SMALL SHIPS NETWORK
PART 4 - LARGE(SOLAS) SHIPS NETWORK
- 3 IEC 60872-3 – RADAR PLOTTING AIDS – PART 3 – EPA
- 4 IEC 60936 – 3 – RADAR – PART 3 – CHART RADAR
- 5 IEC 61097 SERIES - 61097- XX AS REQUIRED
- 6 IEC 61924 - INTEGRATED NAVIGATION SYSTEMS FOR SHIPS
- 7 IEC 61993 - AUTOMATIC IDENTIFICATION SYSTEMS(AIS) – PART 2 –
UNIVERSAL
- 8 IEC 61996 - VOYAGE DATA RECORDERS
- 9 IEC/ISO 62065 - TRACK CONTROL SYSTEMS

ANNEX C**LIST OF DELEGATES****DETAILS - ADDRESSES/TELEPHONE/FACSIMILE/E-MAIL**

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ANNEX D

STRATEGIC POLICY STATEMENT
INCLUDING

MAINTENANCE CYCLE PROGRAMME

A. Background

Scope – To prepare standards for maritime navigation and radiocommunication equipment and systems, making use of electrotechnical, electronic, electroacoustic, electro-optical and data processing techniques;

Current and future Working Groups-

- 1 Radar/ARPA;
- 1A Track control;
- 4 Terrestrial position fixing aids;
- 4A Global navigation satellite systems;
- 5 General requirements;
- 6 Digital interfaces;
- 8 Global maritime distress and safety system (GMDSS);
- 8A Automatic shipborne identification systems (AIS);
- 10 Integrated navigation systems;
- 11 Voyage data recorders (VDR);

History – TC 80 was originated in 1980 on the basis that there was seen to be a need to develop International technical standards for the equipments and systems that were part of, or were likely to become part of the mandatory carriage requirements of the International Maritime Organisation (IMO) Conventions, in particular, the Safety of Life at Sea (SOLAS) and Marine Pollution (MARPOL). The title of the Committee clearly reflects those IMO requirement. The scope specifically excludes aeronautical and land applications. Work in the International Telecommunication Union with regard to frequency allocations and unwanted emissions may require TC 80 in future to develop technical standards that are outside the mandatory requirements of IMO SOLAS, but are inter related with regard to safety of life at sea and involve small sea going vessels.

Publications – 34

Projects in development – 9

P members – 17 – Belgium, China, Czech Republic, Denmark, Egypt, Finland, France, Germany, Italy, Japan, Netherlands, Norway, Romania, Russia, Sweden, UK, USA..

Liaisons – Internal – TC18 and ACEC

Other – all the major International maritime organisations including – International Maritime Organisation (IMO), International Chamber of Shipping (ICS), the International Hydrographic Organisation (IHO), the International Association of Lighthouse Authorities (IALA), International Telecommunication Union (ITU), International Standards Organisation (ISO TC 8/SC5/6/9/10), International Committee of Maritime Radio (CIRM). In addition there are liaisons with the Radio Technical Commission for Maritime Services (RTCM) and the National Marine Electronics Association (NMEA) of the USA, the International Search and Rescue Satellite System (COSPAS-SARSAT) and the International Mobile Satellite Organisation (INMARSAT). TC 80 has established liaison with the International Association of Classification Societies through individual members.

B. Environment

B.1 Business environment

The priority work programme is directly associated with that of the IMO Maritime Safety Committee. It mirrors the performance standards adopted by IMO in their Resolutions and the relevant ITU Recommendations. The scope does not exclude items that are not mandatory with regard to the IMO SOLAS Convention.

External environment – The technical Committee is able, by being represented in both IMO and ITU, to influence the performance and technical content of the Resolutions and Recommendations. This is invaluable to manufacturing industry, in that the performance and technical standards represent the practical state of the current and emerging technology. The Technical Committee has little or no control over the Regulatory aspects of the mandatory equipment selected or of some of technical aspects that influence manufacturing design e.g. radio frequency allocation. This aspect is covered to some extent by members of the Committee being members of their National Government regulatory bodies. This is an area in which the Committee is attempting to increase its influence and to be more proactive in its deliberations.

Internal environment - The Committee objective is to publish standards that have gained overwhelming International acceptance, and thus provide International industry with a single equipment standard. This objective is achieved, in most cases, by ensuring that the Working Groups have representatives from Government, the user, industry and test certification bodies.

B.2 Market demand

Customers – International Organisations, Governments, users, industry and test certification authorities

TC representation – all of the above

Additional representation – Regional standards bodies as required

Participation – there have been no problems with obtaining participation from relevant bodies, with the exception of the International Association of Classification Societies and the European Telecommunications Standards Institute (ETSI). In both cases this has to a certain extent been overcome by the presence of individual members attending our meetings.

Regional/National use - *our aim is that the standards are used and accepted world-wide. The primary frustration of that goal is in Europe with rival ETSI standards for maritime radiocommunication equipment and systems.*

Competing standards – the only significant competition is from ETSI (see above).

Future growth – there are no signs in IMO that the need for safety maritime standards will decrease. There are continuing pressures world-wide to reduce pollution of the environment and improve safety at sea. This could also lead to the requirement for technical standards for ships that are not covered by the IMO SOLAS Convention e.g. small craft radar, the single largest population of maritime radar, that is now required to meet the Radio Regulation requirements for spurious emissions.

B.3 Trends in technology and trade

The single largest technology trend is the continuing increase in the use of digital techniques and satellite systems for navigation and radiocommunication. This creates a need for the regular updating of the standards. The world-wide increase in the use of digital mobile radiocommunications is leading to greater pressures on the radio-frequency spectrum. In particular the long held radio frequency allocations for maritime radiodetermination and radiocommunication systems are under increasing threat.

This will inevitably lead to greater technological challenges for the maritime industry - to create products that operate satisfactorily in an increasingly congested radio environment. Although TC 80 develops standards for safety of life services, it does not automatically protect them from these other influences.

B.4 Ecological environment

Impact on the environment – the equipment standards are for electronic devices, some of which contain transmitters and receivers. In the case of transmitters the output is invariably modulated electromagnetic radiation, the standards of which are strictly controlled by the ITU Radio Regulations. Radiation hazards and voltage levels, with regard to the safety of personnel, are specified in detail, in conformity with recognised International standards.

C. Work programme

C. Current work

The Committee meets at two year intervals. It is therefore expected that the next meeting will be in the autumn of 2001.

List of work priorities:

- 1) the continuation of the development of the IEC 60872 and IEC 60936 series;
- 2) the continuation of the development of the IEC 61108 series;
- 3) development of the fourth revision of IEC 60945;
- 4) the continuation of the development of the IEC 61162 series;
- 5) the maintenance of IEC 61174;
- 6) the continuation of the development of the IEC 61097 series;
- 7) the continuation of the development of the IEC 61993 series;
- 8) the development of IEC 61924;
- 9) the final development of IEC 61996;
- 10) the continuing development of IEC/ISO 62065 – track control;
- 11) the continuing development of ISO/IEC 11674 – heading control;
- 12) the continuing development of ISO/IEC 16328 – heading control for HSC;
- 13) the continuing development of ISO/IEC 16329 – gyro-compasses for HSC;
- 14) the continuing development of ISO/IEC 16273 – night vision.

8. Plan/Objectives/Location WG meetings –

For items C.1 – 1, 2, 3, 4, 6, 7, 8, 10 and 14, there will be about 3 meetings/year each of about 3 days duration until completion. For item C.1 – 5 – the maintenance team are developing a revision by use of an IEC FTP – to complete to publication in 2 years. For item C.1 – 9 – the development has nearly reached the FDIS stage, with expected publication early in 2000. For C.1 – items 11 and 12, the development has reached the parallel voting stage – in IEC the CDV stage. For C.1 item 14 – the standard is being developed by joint meetings and is currently still at the drafting stage.

Locations are by agreement with the Convenors.

Additional expertise required – determined on an ad-hoc basis as required.

C.2 Resources/infrastructure needed

Invitations for TC meetings – responsibility of the Secretary

Invitations WG/Maintenance team meetings – responsibility of the Convenors/Project leaders

Liaisons needed – none.

Editing Committee – all the publications are in English only – with the exception of the revision of IEC 60945.

D. Future work

Long term view – For the future the Committee will continue to “mirror” the activities of the IMO with regard to navigation and radiocommunication equipment and systems and their associated interfaces. It will update current publications in conformance with the agreed Maintenance cycles. It will initiate new work items as and when the IMO activity creates the need for an International standard, and when an associated activity creates a need, within the scope of TC 80.

Size of the activity – this is considered to be stable, without significant increase/decrease.

Structure – The present structure has proved to be satisfactory. No significant reasons have emerged for change.

Requirements for new expertise – this is identified as and when required. There have been no problems acquiring the expertise required.

Stage 0 projects – some have emerged from the 1999 Plenary meeting, and are included in the revised work programme of the Committee.

E. Maintenance cycle			
Publication no.	Date of publication	Publication date for proposed amendment or revision	Responsibility (Maintenance team)
IEC 60872-1	1998-09	2008]	MT2
IEC 60872-2	1999-01	2008]	MT2
IEC 60872-3	2000-04 (expected)	2008] amalgamated as	MT2
IEC 60936-1	1999-12 (expected)	2008] one standard	MT2
IEC 60936-2	1998-10	2008]	MT2
IEC 60945	2001-01 (expected)	2006 revision	MT3
IEC 61023	1999-07	2002 revision	MT4
IEC 61075	1991-07	2002 revision	MT5
IEC 61097-1	1992-07	2002 revision	MT6
IEC 61097-2	1994-12	2004 revision	MT7
IEC 61097-3	1994-06	2001 revision	MT8
IEC 61097-4	1994-11	2004 revision	MT9
IEC 61097-5	1997-12	2007 revision	MT10
IEC 61097-6	1995-02	2005 revision	MT11
IEC 61097-7	1996-10	2006 revision	MT12
IEC 61097-8	1998-09	2008 revision	MT13
IEC 61097-9	1997-12	2007 revision	MT14
IEC 61097-10	1999-06	2009 revision	MT9
IEC 61097-12	1996-11	2006 revision	MT12
IEC 61108-1	2002-03	2007 revision	MT15
IEC 61108-2	1998-06	2008 revision	MT15
IEC 61110	1992-08	To be deleted	
IEC 61135	1992-05	To be deleted	
IEC 61162-1	2000-02 (expected)	2006 revision	MT16
IEC 61162-2	1998-09	2003 revision	MT16
IEC 61174	1998-08	2001 amendment	MT1
IEC 61209	1999-04	2002 revision	MT17
IEC 61993-1	1999-04	2009 revision	MT18
IEC 61996	2000-04 (expected)	2006 revision	MT19

ANNEX E**IEC 61162 series****APPLICABILITY OF PARTS OF THE SERIES****1. Executive Summary**

IEC 61162 is a four part standard which specifies four digital interfaces for applications in marine navigation, radiocommunication and system integration.

The 4 parts are :

- IEC 61162-1 Single Talker and Multiple Listeners
- IEC 61162-2 Single Talker and Multiple Listeners - High Speed Transmission
- IEC 61162-3 Multiple Talker and Multiple Listeners - Serial Data Instrument Network
- IEC 61162-4 Multiple Talker and Multiple Listeners - Ship Systems Interconnection

2. Introduction**2.1 General**

It is the intention of this standard to facilitate safe inter-operability and support the functionality required by modern systems and equipment, thereby satisfying the needs of ship owners, operators, manufacturers, yards and regulatory bodies. Safe interconnection may be achieved if the functionality supported herein is appropriate to the application and the specification has been properly implemented. Every effort has been made to ensure that the specifications will support both current functionality and the increasing demand for advanced functionality only realisable by integration between systems.

With regard to network communications, the specification has been separated as far as practicable into parts dependent and independent of the implementing technology, such that technological advances might be readily and safely adopted into the framework with minimal revision.

It is stressed that operational safety will ultimately depend upon the correct selection and implementation of the specifications detailed herein - safety is not (and cannot be) intrinsic to the specification. While every measure has been taken to ensure that the specifications are capable of supporting safe implementation, it remains that they will not suit every application, nor might they be considered appropriate by the regulatory body. Some guidance on applicability will be provided; however the user is cautioned to take due cognisance of any requirements imposed by the regulatory bodies.

2.2 Rationale for specific marine standards

While there are a number of standardised and proprietary interconnection specifications available, there are none which provide in themselves a complete description of the services required for marine applications.

One key difference in the use of interconnection standards in the marine environment is the conceivable diversity of applications. A ship is in essence a floating community, intended to sustain both persons and cargo in conditions that are often hostile. General interconnection standards are not usually developed with such diversity in mind; being fundamentally limited in their scope, and hence their application. This IEC 61162 series provides four specifications to support the services

required for marine applications: decision support, data acquisition, shipboard and safety management, etc., within the framework and constraints imposed by the various regulatory bodies.

The adoption of proprietary or generalised industrial specifications in the marine environment can in itself pose risks in implementation. Deviation from a generalised specification to support marine specific requirements could potentially lead to the introduction of systematic faults. Furthermore, such specifications may be intended to support functionality not relevant to marine applications, leading to the inefficient use of often limited resources. It should also be considered that dependability issues such as availability, reliability and maintainability often have safety as well as commercial implications in the marine environment, e.g. the loss of steering or propulsion.

With regard to hardware, components manufactured for more benign or general industrial applications may not be suitable for the often hostile marine environment, or be accepted as such by regulatory bodies. It is therefore intended that implementation of this standard need not depend on 'commercial off the shelf' (COTS) technologies. This rationale is equally applicable to software development, since the acceptability of such may also depend on the application and imposed requirements. A further advantage of this rationale is that the standard will continue to support performance standards adopted by IMO and other marine regulatory bodies, rather than be compromised by the demands of other potential users.

The standard will offer benefits to system developers in that economies of scale might be made by reducing application specific development, facilitating common hardware and software platforms and eliminating the need to individually specify or adapt other specifications. Yards will benefit in that the installation and testing of disparate systems will be simplified considerably. Owners and operators will benefit from better integrated systems capable of implementing advanced functionality, rather than ad hoc solutions. Regulators will benefit from the application of a cohesive and systematic standard, which readily supports verification and validation.

The following sections will provide an overview of the characteristics of each of the four specifications, with a view towards clarifying the applicability of each. The user of this standard may therefore be guided towards an appropriate selection for the given implementation.

2.3 USE OF BUS SYSTEMS

The migration from point to point communication links (single talker / multi-listener as in parts 1 and 2 of this standard) to bus-systems (multi-talker / multi-listener as in parts 3 and 4) is to some degree driven by more extensive requirements for connectivity and easy cabling. However, this migration is also one that transforms a relatively simple system with well known failure modes to a much more complex system where failure modes are more difficult to determine and handle.

The designer needs to be aware of this problem when a new system is considered. In particular, load characteristics, response times and failure propagation will be dependent also on nodes not participating in an exchange of information. These parameters must in general be determined as a systems property.

3 IEC 61162-1 Summary

This standard is intended to support one-way serial data transmission at 4800 bits/s from a single Talker to one or more Listeners. This data is in printable ASCII form and may include information such as position, speed, depth, frequency allocation, etc. Messages may be from 11 to a maximum of 79 characters in length and generally require transmission no more often than once per second.

Detailed definition of all transmitted data is included and a means of accommodating proprietary data is provided.

Interconnection between devices may be by means of a two-conductor, shielded, twisted pair cable. No provision is made for more than a single Talker to be connected to the bus.

Multiple Listeners may be connected to a single Talker. The Listener's receive circuit shall consist of an opto-isolator to provide ground isolation.

The electrical definitions in the standard are not intended to accommodate high-bandwidth applications such as radar or video imagery, or intensive database or file transfer applications.

There is no provision for guaranteed delivery of messages and only limited error-checking capability.

4. IEC 61162-2 Summary

The electrical definitions in this standard are intended to accommodate higher data rates than are specified in IEC 61162-1. This standard IEC 61162-2 is intended to support one-way serial data transmission at 38400 bits/s from a single Talker to one or more Listeners. This data is in printable ASCII form and may include information as specified by approved sentences or information coded according to the rules for proprietary sentences. Messages may be from 11 to a maximum of 79 characters in length and generally require repetition rates up to once per 20 ms.

Detailed definition of all transmitted data is provided by the IEC 61162-1 standard.

Interconnection between devices may be by means of a shielded two-conductor twisted-pair wire (A,B) plus any means to secure common signal ground potential (C) for transmitting and receiving devices. For this purpose a third wire, additional to the twisted pair or inner shield of a double shielded cable with insulated shields, may be used.

No provision is made for more than one Talker to be connected to the bus. The Listener receive circuit shall provide galvanic isolation. Multiple listeners may be connected to a single Talker. The improved electrical interface specification permits the connection of up to 10 Listeners.

There is no provision for guaranteed delivery of messages and only limited error-checking capability.

5. IEC 61162-3 Summary

This standard is [designed] intended to support bi-directional data communication between multi-talker and / or multi-listeners at a speed of 250 kbit/s.

IEC 61162-3 contains the requirements for the minimum implementation of a serial-data communications network to interconnect marine electronic equipment onboard vessels. Equipment designed to this standard will have the ability to share data, including commands and status, with other compatible equipment over a single signalling channel.

This standard is based on the CAN specification (ISO 11898) which limits the un-fragmented message size to 8 bytes. This also provides fragmented "fast packet" messages of up to 255 bytes and a "multi packet" of up to 1785 bytes. Data messages are assigned unique priorities, each are allocated priority and transmitted as a series of data frames, each with robust error checking and confirmed frame delivery. The standard does not, in itself, support physical redundancy

The communication speed is 250 kbits/s, corresponding to a cable length of 200 m.

Provision is made for the interface circuits to be powered from the bus and galvanic isolation is necessary between the bus and devices in the system.

This standard is not intended to support high-bandwidth applications such as radar, electronic chart or other video data, or other intensive database or file transfer applications.

6. IEC 61162-4 Summary

This standard is intended to support bi-directional data communication between multiple talkers and/or multiple listeners at a speed greater than 10Mbits/s, in order to facilitate interconnection of shipborne systems.

IEC 61162-4 specifies a communication protocol for use in integrated ship control systems. It defines a ship wide and system level integration mechanism that complements communication solutions provided by other parts of the IEC 61162 series. It is also expected that IEC 61162-4 will be used for data acquisition by higher level, non real-time and non-critical administrative workstations and personal computers. IEC 61162-4 has been developed as a network that can support a high number of nodes (several hundred if proper segmentation is used), with high and medium short response times (between 0.1 second and 1 second dependent on load). Ethernet and Internet protocols are employed at the transport level.

IEC 61162-4 specifies a system interconnection protocol on a higher architectural level than the other parts of this standard. Lower level protocols (-1 to -3) should be used for direct data acquisition and control within time critical loops.

The -4 standard supports the transfer of messages and streams. Messages can be delivered through broadcasts or as point to point. Streams are supported to facilitate transfer of larger amounts of data, e.g., ECDIS charts, RADAR images or other bulk data. Streams are always point to point. Messages up to 1400 bytes can be transmitted without fragmentation, longer messages will be supported as multi-fragmented transmissions.

The capacity of the IEC 61162-4 network is dependent on the number of nodes in the network, the hardware and software in use and the actual physical network layer. As a minimum the standard will provide 10 Mbit/s shared by all nodes on the network, significantly higher capacity is possible with appropriate network technology. Actual performance should be determined by system analysis or measurement.

7. Applicability Matrix

The following table illustrates important differences between the standards, from which the applicability can be evaluated.

	Application	61162-1	61162-2	61162-3	61162-4
1	Data repetition rate	7Hz	50Hz	7kHz	10Hz
2	System bandwidth	4.8 Kbits/s	38.4 Kbits/s	250 Kbits/s	≥10 Mbits/s
3	Number of listeners	>1	10	50	>100
4	Number of talkers	1	1	50	>100
5	Message fragment length	80 byte	80 byte	8 byte	1400 byte
6	Cable length	>500m	>500m	200m	>500m

ANNEX F

Maintenance cycle proposals for the IEC 61097 series and IEC 61993 series

IEC 61097 - Status and requirements for the maintenance program

- 1	1992	SART	Update all IMO and ITU ref. and consequential changes. Add all general and EMC requirements based on IEC 60945 Ed 4. Review the antenna related test methods as reports of problems exist.
- 2	1994	406 EPIRB	Update all IMO, ITU and C/S ref. And consequential changes. Review EMC/EMI tests on the basis of future IEC 60945 Ed 4.
- 3	1994	9. DSC	10. Update all IMO and ITU ref., and add IMO Circ MSC 862 and consequential changes. Add all general and EMC requirements based on IEC 60945 Ed 4 .
- 4	1994	Inmarsat C and EGC	Update ITU and Inmarsat SDM ref. and add IMO Circ MSC 862 and consequential changes. Add all general. Review also the status of the equivalent ETS. Review EMC/EMI tests on the basis of future IEC 60945 Ed 4.
- 5	1997	L band EPIRB	Update ITU ref. And consequential changes. Review also the status of the equivalent ETS. Review EMC/EMI tests on the basis of future IEC 60945 Ed 4.
- 6	1995	Navtex	Update ITU ref. And consequential changes. Add all general and EMC requirements based on IEC 60945 Ed 4.
- 7	1996	VHF	Update ITU ref., add IMO Circ MSC 862 and consequential changes. Review work of RTCM with regard to pager interference.
- 8	1998	W Rx	Update ITU ref. And consequential changes. Review also the status of the equivalent ETS. Review EMC/EMI tests on the basis of future IEC 60945 Ed 4.
- 9	1997	MF/HF	Update ITU ref., add IMO MSC Circ 862 and consequential changes. Remove TTA.
- 10	1998	Inmarsat B	Update ITU and Inmarsat SDM ref., add IMO Circ MSC 862 and consequential changes.
- 11	Future	NBDP	Finish the work that is near completion.
- 12	1997	HH VHF	Update ITU ref. And consequential changes. Consider the need for a fixed version.
- 13	Future	Emy PS	Draft skeleton exists.
- 14	Future	Aero VHF	Regional draft available EN 301 688

IEC 61993 Series status and requirements for the maintenance programme

- 1	1999	DSC	No need to consider until the users of the standard come back with some inputs.
- 2	Future	UAIS	To be determined

IEC 61993-2

The work is progressing well with a very large group subdivided into several subgroups, because it was felt that the scope of work was so diversified that subgroups were essential for a timely completion of the work. It is expected that one more year will see the completion.

The subgroups are:

- HMI – Interface - DSC
- BIIT (Adaptation of the IMO defined BITE)
- M 1371 clarification and understanding. (This is the group which will arrange for future inputs to ITU and IALA for modifications to the ITU recommendation). This means that a maintenance group will have to be started as soon as the standard is finished.)
- Upkeep of the Draft Standard
- Interference
- Radio parameters
- Long range AIS
- Alarms

Note 1 - In addition, agree on one common format for the complete 61097 series and apply since the first maintenance. Draft guidelines exist, are adequate and need only to be adopted by the maintenance groups for the 61097 and 61993 series.

Note 2 - It must be reported that the co-operation with ETSI ERM RP01 has come to a standstill. There is little hope at working level to reactivate it.

Note 3 - In view of the situation in the US towards deregulation, and in opposition to my natural feelings, I would urge serious caution when talking about standards for the non-Convention ships. A decision should also take into account the results of the future discussions at EC level between Member States about the conflict between the MED and the R&TTE directives for the marine radio equipment. This conflict, cannot be resolved by DG VII and must be brought to the attention of DG III.

ANNEX G

LIST OF ACTIONS FROM THIS MEETING

CLAUSE	SUBJECT	ACTION
6.1	Need for 60936-4	WG1/MT1
6.5	Ergonomic criteria – IMO/IEC 60945	WG5/Secretary
6.5	IEC 60945/ITU-327 – Category Z	WG5
6.6	NWIP for 61162-3	Secretary
6.6	Copy of IEC 61162-1 as amended to USA NTSB	Secretary
6.7	Future 61097-11 – progress	Convenor WG8
6.7	Future 61097-14 – Aeronautical VHF – volunteers to assist in drafting	Convenor WG8
6.8	Possible IEC input to IMO MSC 72 on UAIS	Convenor WG8A/ Mr K Fisher/Secretary
6.9	Draft CD for future IEC 61924 - INS	WG10/Secretary
6.11	SDME – IEC input to IMO MSC 72	Convenors WG1/WG4A/Mr Beattie/Mr Lee/Secretary
7.3/7.4/7.5	Merger of radar/plotting standards – radar/UAIS compatibility – symbology – introduction into work programme as Stage 0	WG1/WG8A/MT1/ Secretary
7.3	New technology radar – introduction into work programme as Stage 0	WG1/Secretary
7.6	Bridge watch alarms – introduction into programme as Stage 0 – joint programme with IEC TC18	Secretary
7.7	Small craft VHF with DSC – introduction into the work programme as a new work item proposal	Convenor WG8/Secretary
7.8	Track control – HSC and motion control – introduction into the work programme as Stage 0	Convenor/Secretary
7.10	VTS – UAIS – introduction into the work programmes as Stage 0	WG1/WG8A/Secretary
7.11	Unwanted emissions - radar – proactive response by WG1	WG1
7.12	Unwanted emissions – radiocommunications – proactive response by WG8	WG8
7.13	Radar target enhancer (RTE) – expansion of proposal by Germany – introduction into work programme as Stage 0	Secretary
8	Details and time scales of the maintenance programme	Convenors/Project leaders/Secretary
9.1	Details - Convenors of WG5/WG6/WG10	Secretary to Sec TC18
10.4	ISO/TC8/SC10 – Outcome of Plenary	Mr Messer/Secretary
10.4	Standard guide for implementation of a Fleet management systems – circulation of the CD when available to TC 80	Secretary
11.1	Co-operation with ETSI – impact of the start of the TC 80 maintenance programme for the 61097 series	Convenor WG8/Secretary
11.2	Revision of IEC 61075 – determination of interest by IALA	Secretary
11.3	Co-operation with NMEA – new contacts required	Convenor WG6

13.1	Future Convenors for WG6 and WG8	Convenors WG6/8/Secretary/CIRM
13.1	Mr Podesta to take up duties as Secretary of WG 10	WG10
13.2	Updating of the membership lists of the Working Groups and Maintenance team	All Convenors/Project leader/Secretary
14	Date and location of the next meeting	Mr Hersey/Mr Abe/Mr Leenhouts/Secretary